

In the claims:

CLAIMS 1 – 13 (Cancel)

CLAIM 14 (Previously Presented) A method of forming a spatial light modulator array comprising the steps of:

forming a plurality of electrical circuits in a semiconductor substrate positioned for interconnecting with subsequently formed liquid crystal devices, respectively,

forming one or more layers of interconnections above said plurality of electrical circuits,

forming a first dielectric layer over said electrical circuits and said layers of interconnections,

planarizing said first dielectric layer to provide a substantially planar upper surface on said first dielectric layer,

forming a reflector/absorber layer of conductive material, positioned and patterned with respect to subsequently formed liquid crystal devices for shielding said plurality of electrical circuits from ambient light,

forming a second dielectric layer above said patterned reflector/absorber layer,

forming studs through said second dielectric layer for electrical connection to subsequently formed mirrors,

forming a plurality of mirrors over said dielectric layer and patterned to form the lower electrode of said plurality of liquid crystal devices, said mirrors overlapping said reflector/absorber layer to form a capacitor with respect to said mirrors and to attenuate light traveling between said reflect/absorber and said mirrors,

forming a plurality of spacers positioned in between selected mirrors of said plurality of mirrors,

applying a layer of liquid crystal material,

orienting said layer of liquid crystal material, and

forming a top electrode of said plurality of mirrors to form said plurality of liquid crystal devices.

CLAIMS 15-63 (Canceled).

CLAIM 64 (Previously Presented) A method of forming a spatial light modulator array comprising the steps of:

forming a plurality of electrical circuits in a semiconductor substrate positioned for interconnecting with subsequently formed liquid crystal devices, respectfully;

forming one or more layers of interconnections above said plurality of electrical circuits;

forming a first dielectric layer over said electrical circuits and said layers of interconnections;

planarizing said first dielectric layer to provide a substantially planar upper surface on said first dielectric layer;

forming an absorber layer, positioned and patterned with respect to subsequently formed liquid crystal devices for shielding said plurality of electrical circuits from ambient light,

forming a second dielectric layer above said patterned absorber layer;

forming studs through said second dielectric layer for electrical connection to subsequently formed mirrors;

forming a plurality of mirrors over said dielectric layer and patterned to form the lower electrode of said plurality of liquid crystal devices, said mirrors overlapping said absorber layer to form a capacitor with respect to said overlapping mirror and to attenuate light traveling between said absorber and said mirror;

forming plurality of spacers positioned in between selected mirrors of said plurality of mirrors;

applying a layer of liquid crystal material;

orienting said layer of liquid crystal material;

forming a top electrode of said plurality of mirrors to form said plurality of liquid crystal devices; and

said absorber layer comprises an anti-reflection coating.

CLAIM 65 (Previously Presented) A method of forming a spatial light modulator array comprising the steps of:

forming a plurality of electrical circuits in a semiconductor substrate positioned for interconnecting with subsequently formed liquid crystal devices, respectively;

forming one or more layers of interconnections above said plurality of electrical circuits;

forming a first dielectric layer over said electrical circuits and said layers of interconnections;

planarizing said first dielectric layer to provide a substantially planar upper surface on said first dielectric layer;

forming an reflective layer, positioned and patterned with respect to subsequently formed liquid crystal devices for shielding said plurality of electrical circuits from ambient light;

forming a second dielectric layer above said patterned reflective layer;

forming studs through said second dielectric layer for electrical connection to subsequently formed mirrors;

forming a plurality of mirrors over said dielectric layer and patterned to form the lower electrode of said plurality of liquid crystal devices;

said mirrors overlapping said reflective layer to form a capacitor with respect to said overlapping mirror and to attenuate light traveling between said reflective and said mirror;

forming plurality of spacers positioned in between selected mirrors of said plurality of mirrors;

applying a layer of liquid crystal material;

orienting said layer of liquid crystal material;

forming a top electrode of said plurality of mirrors to form said plurality of liquid crystal devices; and

said mirrors are formed from a metal layer wherein said metal is selected from the group consisting of Ag, Al and alloys thereof.

#### CLAIMS 66 – 72 (Cancel)

CLAIM 73 (Currently Amended) A liquid crystal apparatus comprising:

a plurality of liquid crystal devices positioned on substrate,

a plurality of electrical circuits formed in said substrate coupled to said liquid crystal devices, respectively, for placing a voltage across electrodes of said liquid crystal devices;

a light blocking region positioned between said liquid crystal devices for shielding said plurality of electrical circuits from ambient light; and

said reflection electrodes are comprised primarily of Al and said shading layer is comprised primarily of a material selected from the group consisting of Ti and TiN and  $\text{Ti N}_{0.33} \text{Co}_{0.67}$ .

#### CLAIMS 74 – 93

CLAIM 94 (Previously Presented) A method of forming a spatial light modulator array comprising the steps of:

forming a plurality of electrical circuits in a semiconductor substrate positioned for interconnecting with subsequently formed liquid crystal devices, respectively;

forming one or more layers of interconnections above said plurality of electrical circuits;

forming a first dielectric layer over said electrical circuits and said layers of interconnections;

planarizing said first dielectric layer to provide a substantially planar upper surface on said first dielectric layer;

forming an absorber layer, positioned and patterned with respect to subsequently formed liquid crystal devices for shielding said plurality of electrical circuits from ambient light,

forming a second dielectric layer above said patterned absorber layer;

forming studs through said second dielectric layer for electrical connection to subsequently formed mirrors;

forming a plurality of mirrors over said dielectric layer and patterned to form the lower electrode of said plurality of liquid crystal devices, said mirrors overlapping said absorber layer to form a capacitor with respect to said overlapping mirror and to attenuate light traveling between said absorber and said mirror;

forming plurality of spacers positioned in between selected mirrors of said plurality of mirrors;

applying a layer of liquid crystal material;

orienting said layer of liquid crystal material;

forming a top electrode of said plurality of mirrors to form said plurality of liquid crystal devices; and

said absorber layer substantially prevents radiant energy incident on said non conductive optical blocking layer at a non-orthogonal angle from passing into said semiconductor substrate.

#### CLAIMS 95 – 102 (Cancel)

CLAIM 103 (Currently Amended) A liquid crystal apparatus comprising:

a plurality of liquid crystal devices positioned on substrate,

a plurality of electrical circuits formed in said substrate coupled to said liquid crystal devices, respectively, for placing a voltage across electrodes of said liquid crystal devices;

a light blocking region positioned between said liquid crystal devices for shielding said plurality of electrical circuits from ambient light;

said light blocking region substantially prevents radiant energy incident on said non conductive optical blocking layer at a non-orthogonal angle from passing into said semiconductor substrate; and

said reflection electrodes are comprised primarily of Al and said shading layer is comprised primarily of a material selected from the group consisting of ~~Ti and~~ TiN and  $\text{Ti N}_{0.33} \text{Co}_{0.67}$ .

CLAIMS 104 – 120 (Cancel)

CLAIM 121 (Previously Presented) A method of forming a spatial light modulator array comprising the steps of:

forming a plurality of electrical circuits in a semiconductor substrate positioned for interconnecting with subsequently formed liquid crystal devices, respectively;

forming one or more layers of interconnections above said plurality of electrical circuits;

forming a first dielectric layer over said electrical circuits and said layers of interconnections;

planarizing said first dielectric layer to provide a substantially planar upper surface on said first dielectric layer;

forming an absorber layer, positioned and patterned with respect to subsequently formed liquid crystal devices for shielding said plurality of electrical circuits from ambient light,

forming a second dielectric layer above said patterned absorber layer;

forming studs through said second dielectric layer for electrical connection to subsequently formed mirrors;



forming a plurality of mirrors over said dielectric layer and patterned to form the lower electrode of said plurality of liquid crystal devices, said mirrors overlapping said absorber layer to form a capacitor with respect to said overlapping mirror and to attenuate light traveling between said absorber and said mirror;

forming plurality of spacers positioned in between selected mirrors of said plurality of mirrors;

applying a layer of liquid crystal material;

orienting said layer of liquid crystal material; and  
forming a top electrode of said plurality of mirrors to form said plurality of liquid crystal devices.

#### CLAIM 122 – 160 (Cancel)

CLAIM161. (New). A spatial light modulator array for modulating light to form an image comprising: a plurality of liquid crystal devices positioned over respective mirrors on a dielectric layer on a semiconductor substrate, a plurality of electrical circuits formed in said semiconductor substrate coupled to said liquid crystal devices, respectively, for placing a voltage across its electrodes, and a reflector/absorber layer positioned and patterned with respect to said mirrors for shielding said plurality of electrical circuits from ambient light, said reflector/absorber layer having an edge overlapping an edge of said mirror to form an overlapping region to decrease ambient light from passing into said semiconductor substrate, said reflector/absorber layer partially reflects and partially absorbs said ambient light incident thereon, said reflector/absorber layer is not a black layer and has a reflectivity less than bulk aluminum.

CLAIM 162. (New). A spatial light modulator array according to claim 161 wherein said reflector/absorber layer comprises a material selected from the group consisting of Ti, TiN and  $\text{Ti N}_{0.33} \text{Co}_{0.67}$ .

CLAIM 163. (New) A liquid crystal light valve comprising:

a semiconductor substrate having a region for a plurality of switching elements formed in a matrix form on a surface thereof;

a first metal layer formed on the surface of said semiconductor substrate through an insulating layer and divided into a plurality of parts by first slits;

a second metal layer formed on said first metal layer through another insulating layer and divided into a plurality of parts by second slits;

a third metal layer formed on said second metal layer through still another insulating layer and divided into a plurality of parts by third slits;

an opposite substrate having an opposite electrode on a surface thereof, disposed so as to be opposite to said third metal layer through an interval on said opposite electrode side; and

liquid crystal filling said interval between said opposite electrode and said third metal layer;

wherein said first slits, said second slits and said third slits are located so as to be displaced from each other in a direction parallel to said surface of said semiconductor substrate so as to prevent light projected from said opposite substrate side thereto to reach said semiconductor substrate;

at least one of said first metal layer, said second metal layer and said third metal layer has disposed in contact therewith a reflector/absorber layer which partially reflects and partially absorbs light incident thereon, said reflector/absorber layer is not a black layer and said reflector/absorber layer and has a reflectivity less than bulk aluminum.

CLAIM 164. (New). A spatial light modulator array according to claim 161 wherein said reflector/absorber layer comprises a material selected from the group consisting of Ti, TiN and  $\text{Ti N}_{0.33} \text{Co}_{0.67}$ .